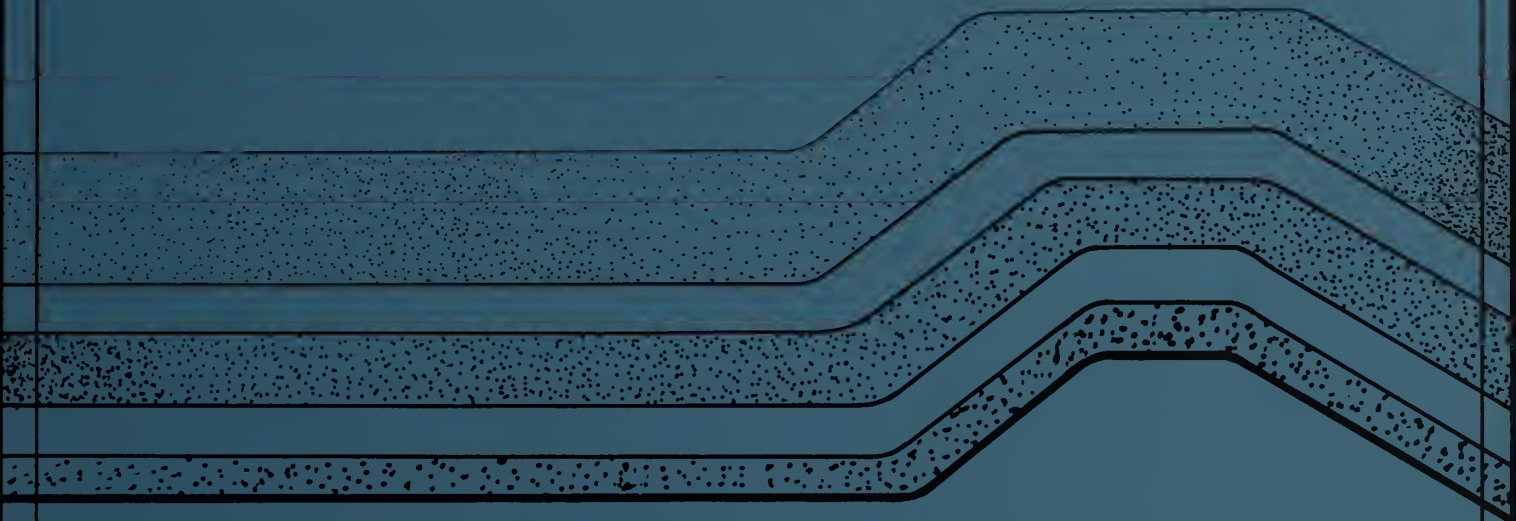


Fossil Butte National Monument

Statement for Management

March 1988



DEFINITION

The statement for management (SFM) is a public information document that provides an up-to-date inventory of the park's condition and an analysis of its problems. It does not involve any proscriptive decisions on future management and use of the park, but it provides a format for evaluating conditions and identifying major issues and informational voids.

Recommended by: /s/ David E. McGinnis
Superintendent,
Fossil Butte National
Monument

12/18/87
Date

Approved by: Lorraine Mintzner
Regional Director
Rocky Mountain Region


3-4-88
Date

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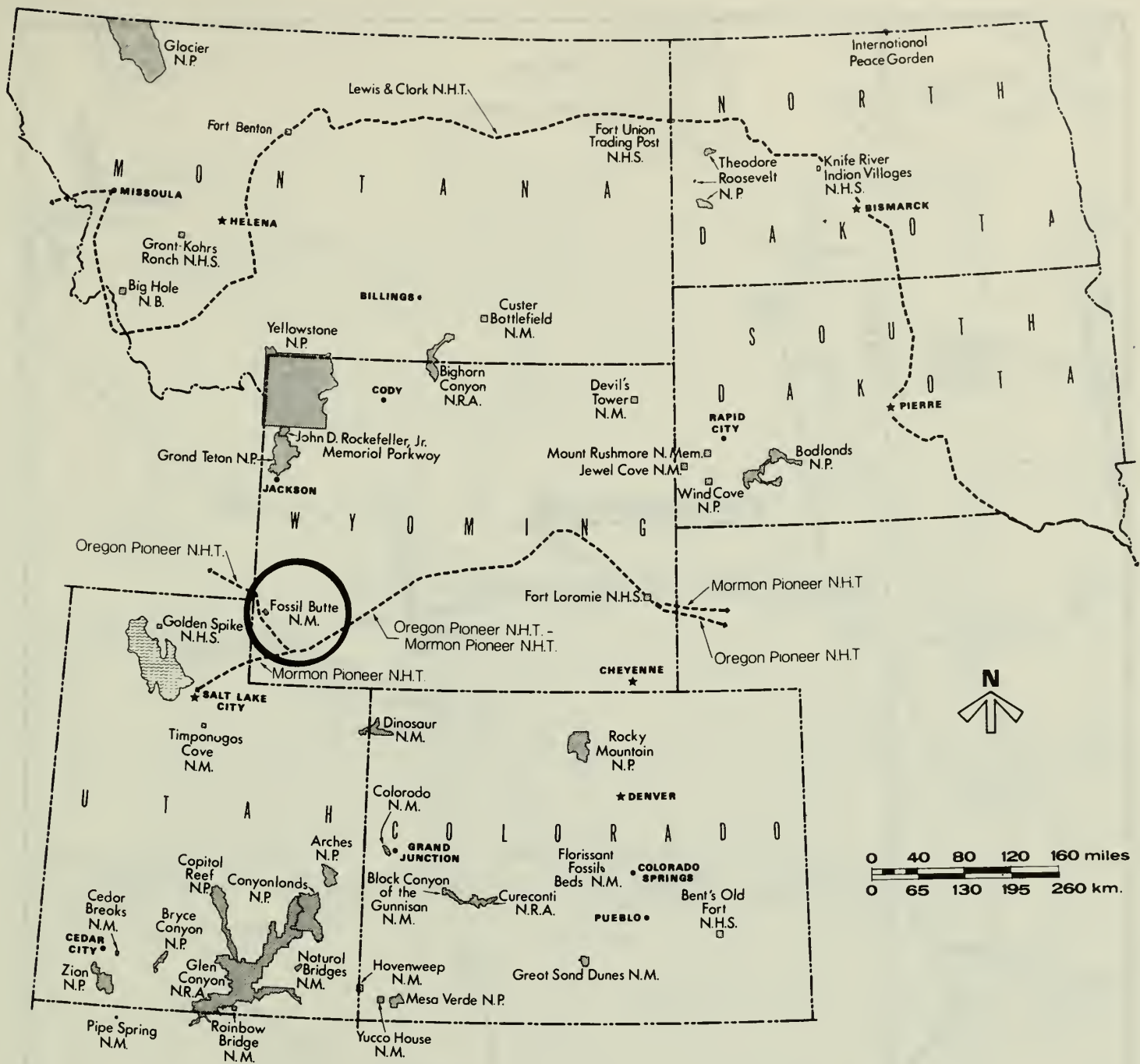
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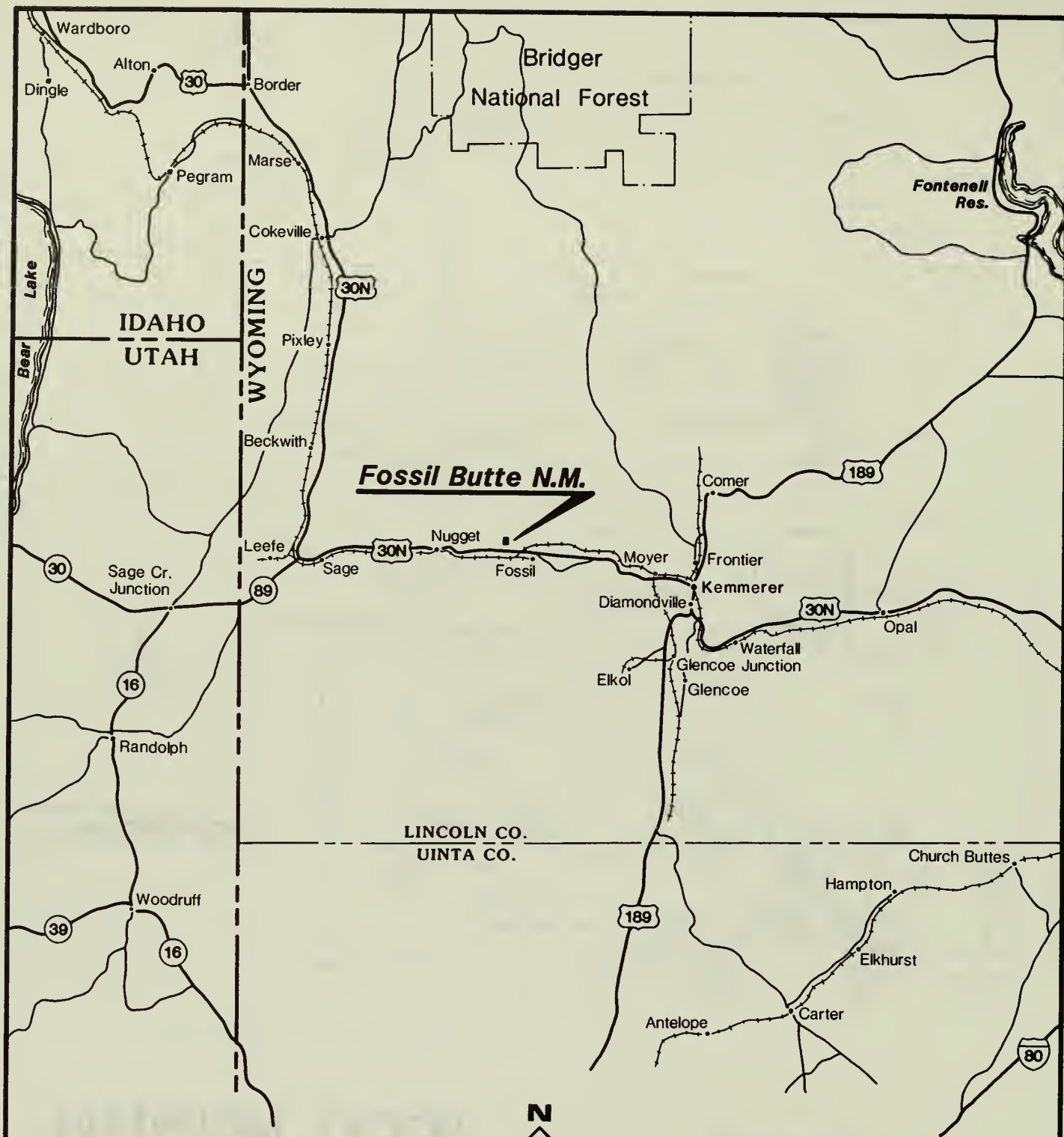


Legend

- Locations of Major Cities
- * Locations of State Capitals
- State Boundary Lines
- National Park Service Areas
- National Park Service Historical Trails

ROCKY MOUNTAIN REGION

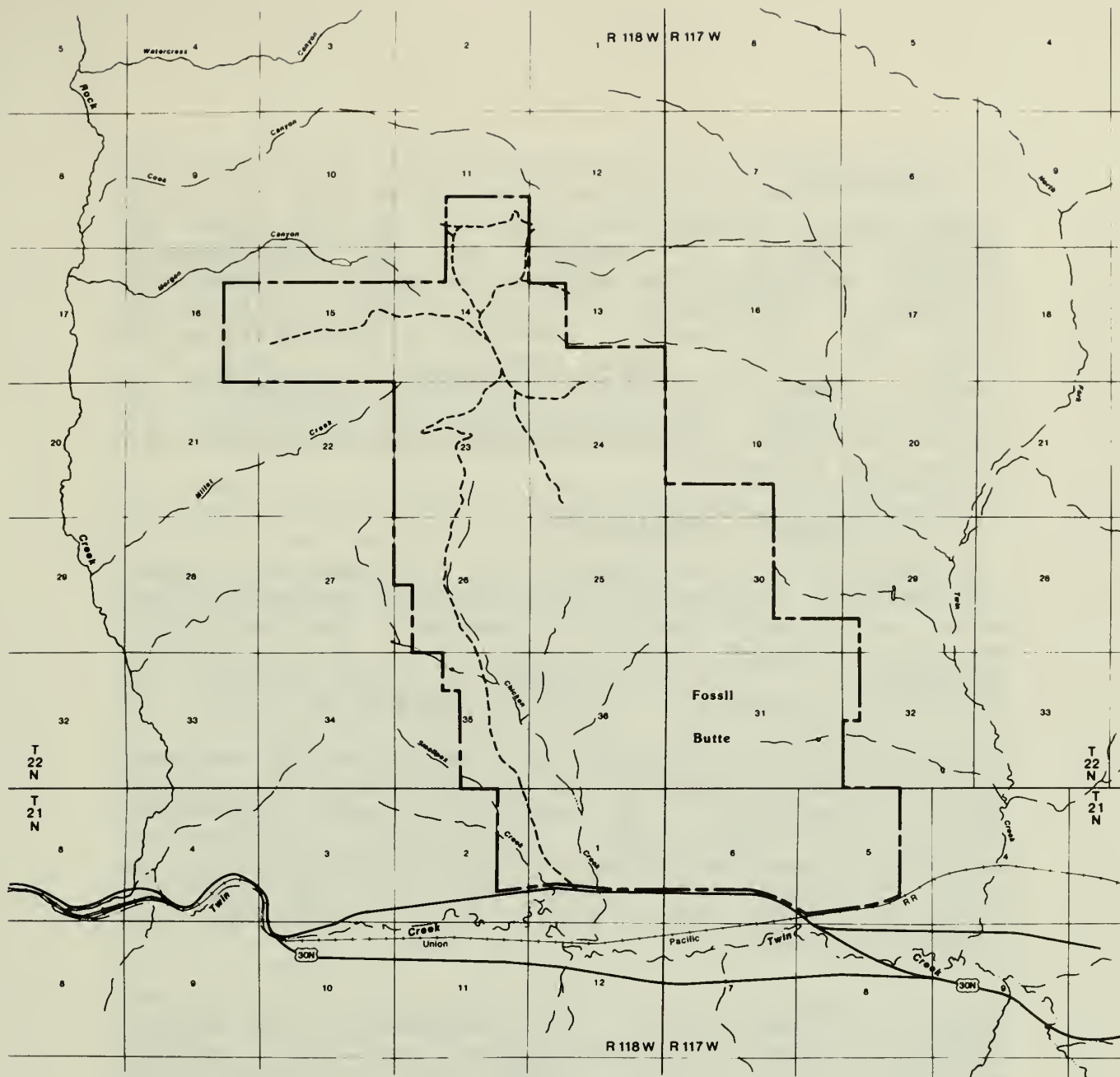
National Park Service
United States Department
of the Interior



Vicinity Map

Fossil Butte National Monument

United States Department of the Interior - National Park Service



Legend

- national monument boundary
- paved road
- unpaved road



0 1 MILE

Boundary Map

Fossil Butte National Monument

United States Department of the Interior - National Park Service

I. LOCATION

Fossil Butte National Monument is in the State of Wyoming, County of Lincoln, and the Congressional District At Large. The monument is about 10 miles west of Kemmerer on Highway 30 at an elevation of 6,800 to 8,000 feet. The general landscape is characterized as high, cold desert. Annual precipitation is about nine inches. Summers are mild and pleasant, but winters are extremely cold. Extended periods of subfreezing are common with night temperatures dropping as far as minus 40 degrees Fahrenheit.

II. PURPOSE AND SIGNIFICANCE

"To preserve for the benefit and enjoyment of present and future generations outstanding paleontological sites and related geological phenomena, and to provide for the display and interpretation of scientific specimens...." Act of October 23, 1972 (Public Law 92-537). (Appendix A - Enabling Legislation.)

Fossil Butte is a geologic area unique to the National Park System, because of an Eocene epoch fresh-water fossil assemblage. The site is of major importance because of its unusual concentration of aquatic vertebrate remains. This is even more significant as known locations of fossil fish of any age are relatively rare, yet at Fossil Butte millions of fish fossils are present.

A good resume of the significance of this site was given by Hesse (1939): "Few museums in the world, certainly none of the larger ones, are without specimens of the fossil fishes from the Green River shales of southwest Wyoming. These are prize exhibition specimens and no other fossil-bearing formation in America has produced so many and such characteristic fossils as this great series of lake beds."

The fish fossils are the primary resource. They represent the evolution of fresh-water fishes better than those from any other known site in America. In addition, fossil remains of plant and animal life are found in the Wasatch formation. These include fragments of primitive horses, turtles, ancestral monkeys, snakes, birds, and crocodiles.

The 8,198 acres of the monument also contain a varied flora and fauna which are unexpected by many visitors. The abrupt changes from dry brushlands and grasslands to forests, and the presence of a variety of wildlife--including deer, elk, moose, beaver, hawks, and eagles--provide additional dimensions to be experienced at Fossil Butte.

III. INFLUENCES: INVENTORY AND ANALYSIS

A. LEGISLATIVE AND ADMINISTRATIVE REQUIREMENTS

1. There is a legislative ceiling of 8,200 acres. (Section 1 Public Law 92-537). In accordance with this section, the Secretary has completed acquisition of lands resulting in a total acreage of 8,198 acres. Fossil Butte National Monument has proprietary jurisdiction.

2. Original legislation authorized, "For a period of ten years, and for not more than ten years thereafter if extended by the Secretary, the continuation of existing uses of Federal lands and waters within the monument for grazing and stock watering may be permitted if the Secretary finds that such uses will not conflict with public use, interpretation, or administration of the monument: Provided, that the use of lands within the monument for stock driveways shall continue in perpetuity at such places where this use will not conflict with administration of the monument." (Section 4[a])

Ranchers grazing cattle on the monument were given termination notice in 1984, and subsequently grazing was terminated on the monument in 1986. In the fall of 1987, a Secretarial decision was made to restore grazing temporarily. The Secretary's decision allowed for a three-year phase-out of all monument grazing. The decision indicated that full grazing was to take force in 1987, a one-third reduction in 1988, a two-thirds reduction in 1989, and final termination in 1990. The decision also indicated that the BLM would provide additional grazing to compensate for that which was to be lost in the monument.

3. "Upon termination of the uses set forth in subsection (a) of this section, the Secretary of the Interior is authorized to provide for the disposition

and use of water surplus to the needs of the monument, to a point or points outside the boundaries of the monument." (Section 4[b])

Water, for use by livestock, has been provided by the Bureau of Land Management to a point outside the monument. This was accomplished through horizontal drilling in Section 14.

This use needs to be monitored, because the area lies just south of an identified archeological site. In the fall of 1987, the BLM removed a watering tank from NPS land. Extending the waterline well out on BLM land, they reinstalled the old tank in preparation for NPS termination of grazing.

4. Section 5 of the enabling legislation authorized \$378,000 for land acquisition and not to exceed \$4,469,000 for development.

All surface land has been acquired. All previous nonfederal mineral ownership and development rights have reverted back to the Federal Government. All early mineral leases issued by the BLM have expired due to a lack of development within required time frames.

Construction of visitor use facilities has been tentatively rescheduled for 1988 and 1989. Initial planning actions recognize the need for a facility that is no more elaborate than necessary for the interpretation, administration, and maintenance of the monument. The State of Wyoming has authorized up to \$2 million (i.e., up to 31 percent of total cost) in road construction funding contingent upon a 1988 Federal appropriation of \$4.3 million for monument development.

B. RESOURCES

1. Paleontology

Surveying the whole of the geological time scale, the era of most interest at Fossil Butte is relatively recent. The time of invertebrate dominance of life forms had passed; primitive plants and fishes had developed followed by the appearance of amphibians and the first reptiles; dinosaurs had come and gone, birds appeared on the scene, flowering plants flourished, and major mammal groups were developing.

It was at this point in the sequence that the life of the Eocene occupied stage center in the drama of geologic and biologic events at the Green River system of lakes. Because of the excellent preservation of that time at Fossil Butte, we are able to reconstruct from the fossil record, an accurate picture of the climate, geography, and living creatures long vanished.

The period of deposition occurred 50 million years ago. Fossil Lake endured for approximately 2 million years; it is the smallest and shortest lived of the lakes of the Green River System. The depositional cycle was replaced by an erosional cycle, when these formations were raised from about 1,000 feet above sea level to an elevation of 7,000 feet. They have since weathered to produce the bright red-banded badlands of the Wasatch that contrast with the light-colored, layered Green River. The significance of the formation derives from the completeness of the fossil record at this time in geologic history.

The Green River Formation is the most important rock unit in the Fossil Butte story. Of its 220 layers, about 60 contain fossils, according to Geologist Lance Grande. The 2 main fish-bearing units are the 18-inch layer of laminated limestone and another known as the "split-fish" layer that is nearly pure calcite and is about 6 feet thick. Some 28 species of fish are known from the Green River Formation. As work continues in the less explored layers, this figure is expected to increase. It is important to note that even after 100 years of concerted collecting, there is still an untapped resource to be collected and studied.

The stream deposits and the lake bed have turned to stone. The stream deposits have become the Wasatch Formation composed of sandstone, mudstone, conglomerate, and other rock types. Fossils were discovered--fragments of primitive horses, turtles, monkeys, snakes, birds, and crocodiles.

The lake bed deposits are preserved in the Green River Formation and are composed of limestone, siltstone, mudstone, paper shales, and other rock types--reaching a thickness of 300 feet. Well preserved fossil fish are entombed in the rock.

2. Prehistory

Paleo-Indian Period (12,000-8,000 B.P.) - Cultural material from this period is not presently identified in the area. Although projectile points are the primary representation of this period, stone knives, blades, and scrapers are also found.

Early Archaic (Altithermal) Period (8,000-5,000 B.P.) - Material directly from this period has been found within the park associated with a spring site on the eastern park boundary.

Middle Archaic Period (5,000-2,500 B.P.) - The three sites identified in the monument (Zeimens 1976) probably contain occupations dating to this period. Material includes projectile points of the McKean Techno-complex, with expanding stems, convex bases, rounded shoulders, and very sharp points. Knives, metates, manos, and other stone tools were also found in these three sites.

Late Archaic Period (2,500-1,500 B.P.) - Two distinctive types of projectile points represent this period. The "Great Basin Fremont-Influenced Rose Springs" type is characterized by being small and triangular corner-notched with small stems. The "High Plains-Shoshonean" type is triangular side or trinotched.

The area is transitional between the arid basin and the mountains. Transitional zones generally support a greater variety of plant and animal resources than mountain or arid basin zones and seem to have been especially important to prehistoric hunting-and-gathering nomads. During certain times of the year, the transition zone probably provided certain foods essential to an economy based on seasonal availability of resources. The short growing season in this area is not conducive to horticulture or the development of large sedentary populations.

3. Historic

Historic activities around Fossil Butte began on a regular basis around 1877. The first settlers with livestock arrived in 1884, and intense grazing apparently started in the 1890's.

The first published notice of the fossil-bearing formations was by Professor F.V. Hayden in 1869 in connection with regional geological surveys commissioned by the U.S. Government. Fossils have been removed from the formations here for over 100 years. Commercial quarriers have sold specimens to private collectors and to many of the world's great museums. Several early fossil quarries, as well as an A-frame cabin used by early fossil hunters, were identified in 1974 as part of the "Historic Plan, Fossil Butte National Monument."

These, as well as archeological sites 48 LN 326, 48 LN 1690, 1691, and 1692 are potentially eligible for nomination to the National Register of Historic Places. In October of 1987, the Chicken Creek Ranch site (48 LN 1693) was determined not to be eligible for the National Register by the State Historic Preservation Officer.

4. Climate

Extreme variations in temperature ranging from minus 40 degrees Fahrenheit in winter to 90 degrees Fahrenheit in the summer, accompanied by periods of strong winds, create a very harsh climate during much of the year.

Summer days are warm, but nights are cool. Winters are clear and cold. The annual precipitation in this semiarid climate averages about nine inches; most of it falls as snow.

5. Landscape Characteristics

Fossil Butte lies in southwestern Wyoming, in Fossil Basin, at elevations ranging between 6,800 feet and 8,000 feet. The topography is characterized by ridges and buttes broken by steep arroyos and intermittent streams. Vegetation is sparse except at springs and along streams, and consists mainly of shrubs and short grasses. Fossil Butte itself rises some 1,000 feet from the valley below. Springs on the sides of the slope nourish aspen and cottonwood groves.

6. Vegetation

The Fossil Butte area has been dominated by sagebrush steepe vegetation for 7,000 to 10,000 years.

Just prior to settlement, the area had dense stands of sagebrush with groves of timber and grass mixed with sagebrush on the hills at higher elevations. The southeast face of Fossil Butte had a stand of conifers, but now it has cottonwoods. The aspect of the country apparently has not changed significantly since settlement except that the sagebrush may be taller.

The present vegetation on Fossil Butte National Monument is a complex mosaic of 12 intergrading vegetation types controlled by interrelationships of soil, moisture, topography, and natural and man-caused disturbances. Six species or subspecies of woody sagebrush are present, but only three dominate the area. All mixed timber stands and many sagebrush stands show evidence of past fires. The fire interval has been 8 to 21 years in the Mixed Timber Type. Fires in the sagebrush occurred about 18 to 49 years ago. The most recent fire was five years ago.

Past studies have referenced up to 20 threatened and endangered plant species in the monument, but no documentation exists that verifies or lists them specifically.

7. Wildlife

About 11,000 years ago, a species each of a horse, camel, and bison were present in the area. Around 7,000 years ago the horse and camel became extinct; the bison evolved into a smaller, modern form; and small mammal abundance and diversity declined. Archeological data indicate that pronghorn, bison, mule deer, elk, sage grouse, prairie dogs, cottontails, jackrabbits, moles, ground squirrels, chipmunks, woodrats, and badgers were present before white settlement. In addition to some of these, grizzly bear and gray wolf were mentioned by early travelers. Just prior to settlement, the grizzly bear, bison, elk, and pronghorn were eliminated from the area. Since settlement, pronghorns have reappeared, moose have appeared, gray wolves have been eliminated, mule deer have become much more abundant, and prairie dogs have declined. At least 34 species of mammals, 72 species of birds, and 5 species of reptiles and amphibians have been observed in Fossil Butte National Monument since 1974.

C. LAND USE AND TRENDS

1. Regional

Served by U.S. Highway 30N and County Road 300, the area has good accessibility. It is located along a route to some of The Nation's most popular attractions--Grand Teton and Yellowstone National Parks, less than 250 miles north; Flaming Gorge National Recreation Area, less than 150 miles southeast; and Dinosaur National Monument, 200 miles southeast. The town of Kemmerer, the closest urban center, is situated 10 miles east of the monument on U.S. 30N. The Salt Lake City-Ogden population center is 120 miles to the west.

2. Local

Cattle and sheep grazing are the major land uses in the area. In the immediate vicinity of the monument, these activities are under the supervision of the Bureau of Land Management through the Rock Creek Allotment Management Plan.

The Bureau of Land Management administers the majority of the land surrounding Fossil Butte National Monument. The BLM finalized its Resource Management Plan for the Kemmerer District November 8, 1985.

Commercial fossil quarrying operations have been taking place for over 100 years. Several of the quarries are located within five miles of the monument. These operators sell fossils throughout the country and promote the Fossil Butte area.

Massive oil and gas fields have been located in the overthrust belt from Evanston northward past the monument. Recent activities including seismic exploration (10 lines along the entire park boundary were permitted by the Bureau of Land Management in December 1983) and full-scale drilling has occurred just outside the boundary. No activity has occurred since 1986.

Two large coal strip mines located on a mix of Federal and private lands are in operation 10 miles southeast of the monument. They are owned by FMC Corporation and Pittsburg and Midway Coal (P & M, a subsidiary of Chevron).

An electric generating plant, operated by Utah Power and Light Company, is adjacent to the P & M Coal mine.

Fossil Butte National Monument is designated as a Class II clean air area under the 1977 amendments to the Clean Air Act (42 U.S.C. 7401 et seq.). In 1980, the monument was one of several National Park Service units recommended to the Congress and the States for redesignation to Class I since it has air quality related values (visibility, plant and animal life, or cultural resources) which are important attributes.

The Superintendent, with the assistance of the National Park Service Regional Air Quality Coordinator and the National Park Service Air Quality Division will work with the Wyoming Department of Environmental Quality (Air Quality Division) and the Environmental Protection Agency to assure that the Class II increments (maximum allowable concentration increases) for sulfur dioxide and particulate matter will not be exceeded at the monument.

The Union Pacific Railroad passes along the southern boundary of the monument. In June 1983, a landslide--slump--from the southeast corner of Fossil Butte destroyed the existing line. In 1984, Union Pacific rerouted the track a short distance to the south from the old line and the monument boundary. A new overpass was constructed to accommodate the new grade over old U.S. 30N, the main entrance road to the monument. The old overpass was removed in the spring of 1985. Evidence of the old railroad grade remains as well as the impact on the area from the construction work. The impacted area was reseeded in 1985. Old ballast was given to the County and stockpiled on the south side of County Road 300 across from the Fossil Butte temporary visitor center.

The Sublette Cut-Off of the Oregon Trail passes about five miles north of the monument boundary. Evidence of western migration such as remnants of the trail, Nancy Hill's Grave, and Emigrant Springs are well known locally and noted on State and U.S. Geological Survey maps.

3. Boundary Control

The north and west monument boundaries were fenced by

contract in 1984. Maintenance and rehabilitation of existing fences along the eastern and southern boundaries were completed in June 1986 by park staff. The entire existing boundary fence was signed, with NPS boundary markers, by YCC enrollees during the Summer of 1986.

One 700-acre section, Rubey Point, remains unfenced. This area was surveyed by RMR staff in September 1987 and one-fourth of that was marked at 100-yard intervals with Carsonite, NPS boundary posts. Rubey Point should be fenced, by contract, to exclude grazing by August 1989. Fencing is also necessary to prevent further illegal hunting. Three cases were lost in 1987 due to inadequate marking and fencing.

4. Within Boundaries

There were six leases, combined into the Nugget Canyon unit, outstanding within the monument. These leases expired on January 31, 1985. No attempts have been made to renew these leases thus far.

Utah Power and Light Company has a Special Use Permit (Number CX-1468-7-001) that expires June 23, 1989. This permit is for a powerline to the visitor contact station.

A memorandum of understanding with the Bureau of Land Management shares management of grazing with that Agency. Fossil Butte National Monument will operate as a pasture within the Rock Creek Allotment between 1987 and 1989. During that period, grazing is to be phased out by thirds each year. All grazing will be terminated by August, 1989.

National Interagency agreements provide for fire assistance, both for suppression and planning, through local officers of the Bureau of Land Management and the U.S. Forest Service. The BLM will be drafting a new fire management plan starting October 1, 1987 and should have it operational by June 1, 1988. The BLM has received a request to include Fossil Butte as a tenth fire management unit within their plan.

Each year sheep are driven through the monument, using existing stock driveways on the way to pastures in higher elevations. The drive usually takes one day.

This use was authorized under the monument's enabling legislation. Fees were charged for the first time in 1987 for trailing through the monument.

Potable water is presently not available at the monument. Comfort stations are in the form of vault toilets. Two concrete vault toilets replaced a pit toilet at the visitor center in the spring of 1987. Another vault toilet was installed at the picnic parking area in December 1987.

Because the visitor contact station is not equipped for cold climate conditions, and staffing during this period is not adequate to man the visitor contact station, it is operated only May through September. Park headquarters is in Diamondville, 11 miles to the east. Office space is leased from the General Services Administration (GSA).

A small picnic area, in an aspen grove four miles into the interior of the monument, was fenced in the fall of 1984. Additional picnic tables and fire grates were added during the summer of 1985, and visitors will be directed and encouraged to use the area. During the summer of 1987 a rock fire ring and rustic bench seating were installed at the picnic area to accommodate evening programs.

D. VISITOR USE ANALYSIS

1. Seasons of Use

The visitor contact station is only open from May to September each year; therefore, 85 percent of visitation occurs during that time with July being the peak month. The main building, a 12-foot by 60-foot trailer, and adjacent vault toilets are not winterized; climatic conditions as well as staffing constraints limit extended operations.

2. Visitor Trends

Visitor use of Fossil Butte National Monument is totally day use. An average length of stay is approximately one hour. Only 20 percent of the visitors use the interpretive trail to the historic quarry. Those using the trail increase their length of stay by about one hour.

According to the "monthly visitation" graph, it is apparent that visitation reflects the normal seasonal use expected for this climate. One suspects that there is some influence on visitation at Fossil Butte from those visitors using routes to Grand Teton and Yellowstone National Parks. These routes pass close to Fossil Butte on the east and west.

Annual visitation steadily increased from 1980 through 1982, leveling off in 1983 and dramatically dropping in 1984. This decrease can be attributed to highway construction, detours, and the rebuilding of the Union Pacific Railroad adjacent to the monument. The cumulative effects of the construction projects were more than enough to discourage visitors. Visitation in 1987 reached over 20,000, a considerable increase over all previous years.

3. Visitor Origin*

- 6 percent - Local
- 20 percent - Regional
- 65 percent - National
- 9 percent - International

*These are approximate figures. Visitor use patterns, trends, and visitor mileage may be further identified only by an increase of staffing and development of the facilities.

E. FACILITIES AND EQUIPMENT ANALYSIS

1. Nonhistoric Roads and Trails

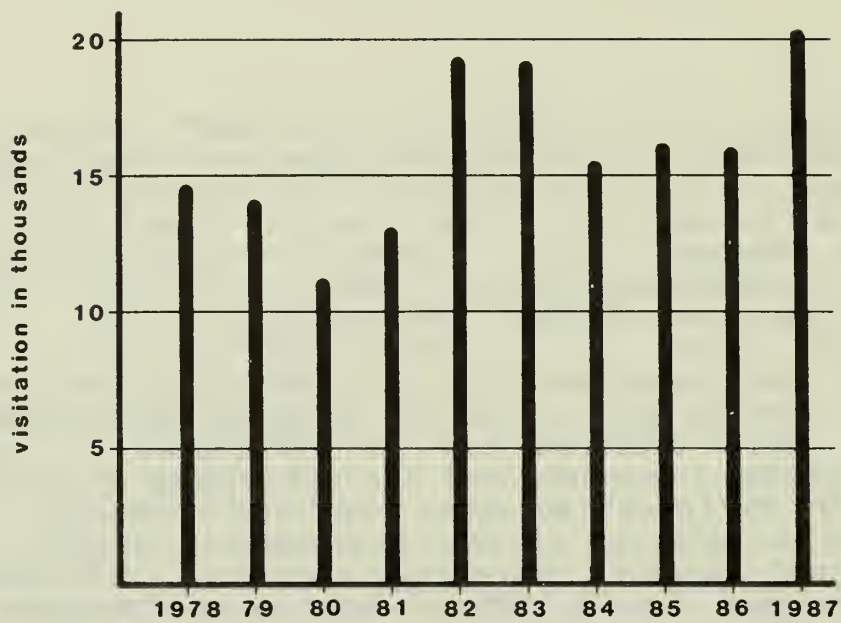
See file D30, Roads and Trails, at park headquarters.

2. Nonhistoric Buildings

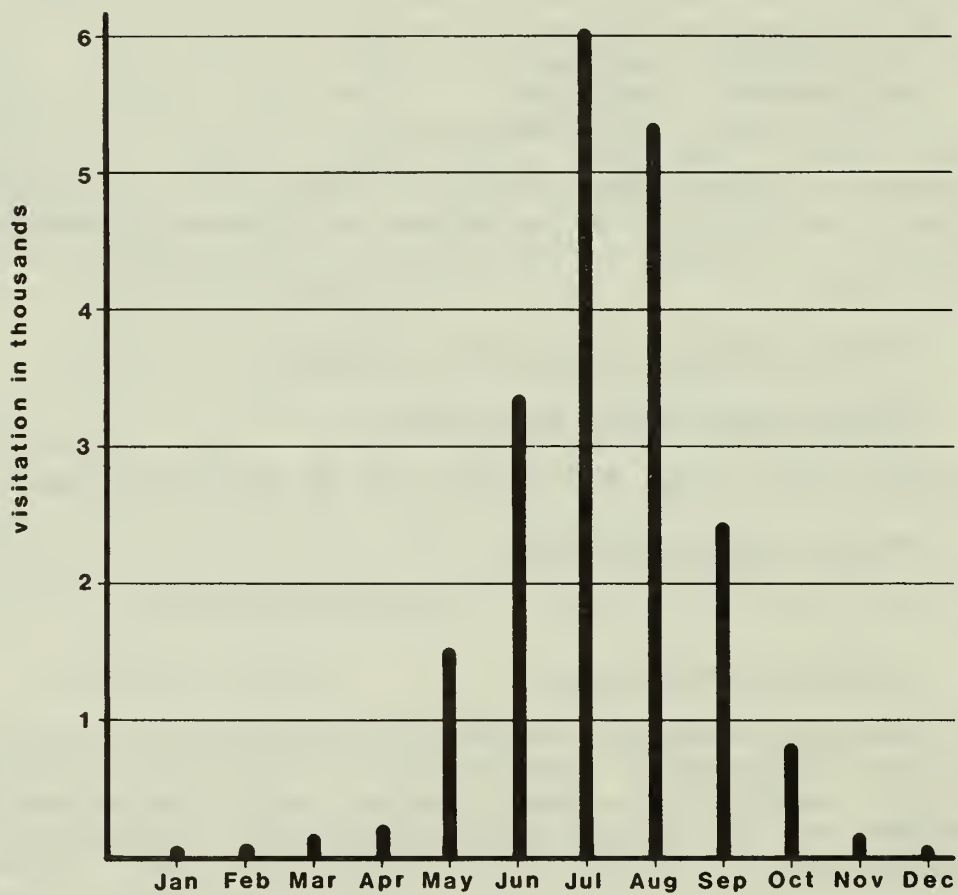
See file D34, Buildings, at park headquarters.

3. Historic Structures

One structure within the monument boundary is on the List of Classified Structures--(10708 HS-02) Quarry Historic District, A-Frame shelter. Status should be reviewed as to preservation treatment. (Listing in Appendix B).



Annual Visitation



Monthly Visitation - 1987
Fossil Butte National Monument

4. Utility Systems

Electricity is provided from Utah Power and Light through Union Pacific lines. All potable water is hauled to the site from outside the monument boundaries. Telephone service is provided by Mountain Bell.

5. Major Equipment

See Capital equipment inventory on file at park headquarters.

F. STATUS OF PLANNING

<u>Plan/Study</u>	<u>Preparer</u>	<u>Completed Or Approved</u>	<u>Comment</u>	<u>Repository</u>
General Management Plan	DSC	3/12/80	Current	RMR-PP
Resource Management Plan	Park/RMR	Approved 2/86	Current	--
Interpretive Prospectus	HFC	11/84	Current	HFC
Grazing Impact Study	Mt. West Environmental Studies	1984	Current	MWES
Soil Investigation	Ralph Rohwer	5/78	Current	Rohwer
Road Inventory and Needs Study	FHW	1980	Current	FHW
Archeological Assessment	George Zeimens	1976	Inadequate Question methods & completeness	University of Wyoming Laramie
Statement for Interpretation	Park	4/87	Current	RMR-MI
Fire Management Plan	BLM/NPS	--	To be finished 6/88	--
Scope of Collections	Park	Approved 3/86	Copies available-- RMR and Park	

G. EXISTING MANAGEMENT ZONING

1. Natural Zone

The majority of the monument area, approximately 90 percent, is classified as Natural Environment Zone. The most significant area of the park, which contains outstanding paleontological deposits or related geological phenomena, constitutes approximately 20 percent of this zone.

2. Historic Zone

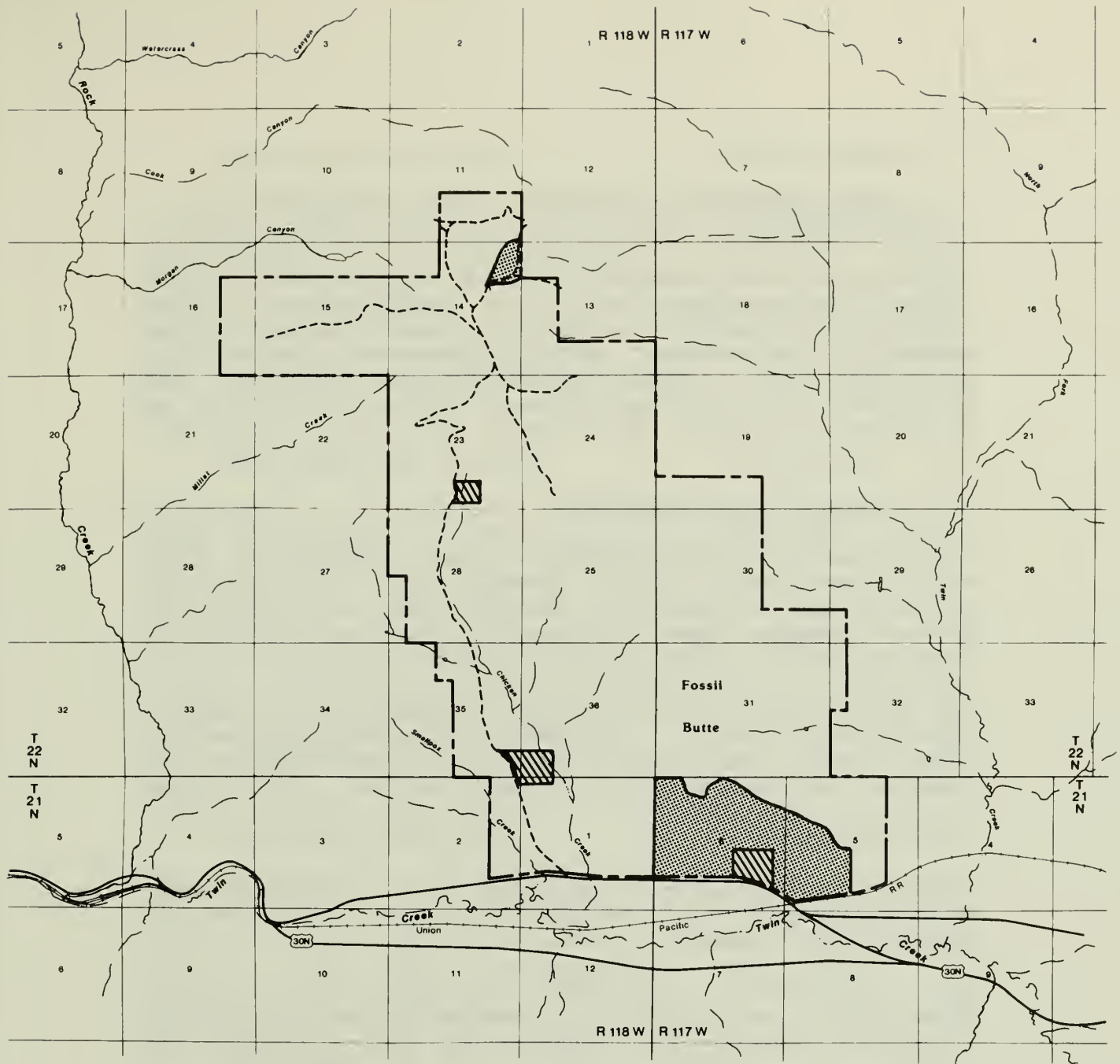
Actually two such zones exist within the monument boundaries. One is an archeological site on the north end of the monument, and the other is an A-frame structure and quarry on the southeast face of Fossil Butte proper. These features are eligible for nomination to the National Register. The Historic Zone constitutes approximately eight percent of the area. The Chicken Creek Ranch Site, approximately three miles north on the Chicken Creek Road, was nominated for the National Register of Historic Places in the fall of 1987 and has been determined to be ineligible.

3. Park Development Zone

The remaining two percent of the park is developed or is a proposed development area. There are three areas so designated--a small visitor contact station and parking area located on the southeast corner of the monument, a picnic area located along Chicken Creek Road (approximately four miles from the southern boundary), and the proposed visitor center site located one mile from the southern boundary, also on Chicken Creek Road. Note: This site has been relocated from the one noted in the general management plan approved in December 1980. A small track of acreage on BLM land located south of County Highway 300 and near the southwest corner of the monument, is being considered as the alternate location of a maintenance facility and yard.

4. Special Use Zone

The entire monument will remain designated pasture through September 1989. This use is addressed elsewhere in this document.



Legend

- national monument boundary
- paved road
- unpaved road
- natural zone
- development zone
- historic zone



0 1 MILE

Existing Management Zoning Map

Fossil Butte National Monument

United States Department of the Interior - National Park Service

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IV. MAJOR ISSUES

A. DEVELOPMENT OF INTERPRETIVE AND ADMINISTRATIVE FACILITIES

The general management plan, approved in December 1980, calls for construction of a combination visitor center/administrative facility at Fossil Butte National Monument. An amendment is being prepared, winter 1987, to allow for a separate maintenance facility and development of a spring-fed water system. Following is a survey of present deficiencies and needs associated with development.

1. Visitor Interpretation

The current visitor contact station contains a small exhibit room and a fossil storage area. The building, intended as a temporary facility is a 12-foot by 60-foot mobile home. Frequently, this facility is overcrowded during the visitor season.

The main exhibit room becomes claustrophobic when a mere 15 people enter. The fossil storage area, used to demonstrate the preparation and preservation of fossils, accommodates even fewer people. Only vault toilets are available, and potable water must be hauled from headquarters.

Exhibits, with the exception of a professionally painted mural and one exhibit case, are locally produced and temporary in nature.

One interpretive trail leads visitors on to Fossil Butte, to the site of a historic fossil quarry. Facility development is needed as well as additional trails to interpret the area's resources and accommodate visitors.

The visitor contact station and associated vault toilets are not winterized, thus necessitating closure of the facilities six months of the year.

The present facilities do not include provisions for use by the physically disabled.

2. Administrative Area

As the visitor contact station is only a seasonal facility, office space is inadequate, especially since the permanent staff has increased. Two small offices are utilized by the Superintendent and Chief Ranger. Files, a copy machine, bookcases, and storage cabinets consume most of the office space. Additional GSA space has been available since 1986. The general management plan identifies adequate administrative space for the new facilities.

B. TERMINATION OF GRAZING

According to the enabling legislation for Fossil Butte National Monument, grazing will be permitted for ten years (from 1972) and an additional ten years on a year-by-year basis, provided the grazing does not conflict with development and public use. As development has been identified, the termination of grazing in the near future is desirable. By a decision of the Secretary of Interior, grazing is scheduled to be phased out between 1987 and 1989. It will be reduced by one third each year. A BLM/NPS Memorandum of Agreement defines the way this phase out will be accomplished.

1. Vegetation Management

Monitoring of vegetation types and individual species is needed to determine effects of the absence of grazing. Will native species reduced by grazing recover, will they "out-compete" the exotics? A comprehensive study to identify threatened and endangered species should be completed. This will occur regardless of the outcome of the grazing issue.

2. Fire Management

In relation to grazing, how will the absence of cattle affect the accumulation of fuels? What affect will fires in the monument have on the surrounding area?

The Grazing Impact Study, 1984, identifies the need for a let-burn policy to rejuvenate both the sagebrush and aspen vegetation areas. Again, regardless of the change in grazing, fire management remains a major concern for natural resource management.

3. Erosion Control

Trampling of vegetation and accelerated stream erosion have been attributed to cattle grazing on monument lands. Monitoring is required to note changes in undergrowth of wooded areas, trampling near springs, and streamside erosion.

If the proposed beaver-introduction program--to recover areas along Chicken Creek--is to be initiated, grazing cattle must be removed from the area.

4. Wildlife Management

Observation surveys will be conducted to monitor changes in occurrence of primarily large mammals due to absence of cattle.

C. STORAGE AND CARE OF COLLECTIONS

Facilities for storage and preservation of monument collections are grossly inadequate. They consist of a small storage room at the visitor contact station and an additional 10-foot by 10-foot wooden shed maintained at the Bureau of Land Management yard in Frontier, Wyoming--10 miles east of the monument.

An additional consideration is the needed preparation of a large portion of the collection. For example, one accession contains 45 slabs of fossil-bearing rock from the Green River Formation. These will yield a number of individual specimens, which will require many hours of preparatory work. Accountability of the overall collection and individual specimens should be the first priority.

D. PROTECTION OF RESOURCES

A baseline study and inventory of park resources, primarily documenting the paleontological resources of the Green River Formation, is needed. It has been assumed that theft of fossils from the monument is occurring with some regularity. However, no actual evidence of this exists. With headquarters located ten miles from the monument and the visitor contact station closed six months of the year, monitoring backcountry use is difficult.

E. AUTOMATIC DATA PROCESSING MANAGEMENT

With all of the above, monitoring and establishment of baseline data is a requirement. This information would best be stored in a manner where it could be retrieved and used.

In May 1985, the Rocky Mountain Region noted that as many functions as possible will be left to field areas for completion. This applied primarily to small areas (Fossil Butte included) that have relied on the region in the past for assistance with routine functions. The increased workload on the permanent staff has been greatly eased by the acquisition of an ADP system.

Park staff will be trained to facilitate maximum use of this equipment.

F. WATER MANAGEMENT

In response to the monument's authorizing legislation, there is a need to develop a process to determine water quantities that are surplus to the monument's needs. There is also a need to determine what effect there may be on the Federal Water Right at Fossil Butte, as a result of providing water from the monument to private parties outside the monument. The question of water needs for the monument now and in the future should be addressed.

V. MANAGEMENT OBJECTIVES

To limit extraction of the paleontological resources to scientific research that may be required in connection with monument development, and to fill gaps in the knowledge of these resources that cannot be obtained elsewhere.

To obtain a representative collection of fossil specimens to adequately display and interpret the paleontological resources to the public.

To encourage and foster scientific research to provide information for a comprehensive and accurate interpretive program.

To protect and preserve within the constraints of the

enabling legislation, all elements of the natural and historic resources of Fossil Butte.

Provide an inventory and evaluation of the cultural resources of the monument.

Maximize use of alternative energy sources and technology. To develop administrative and visitor-use facilities necessary for enjoyment and use of the national monument in a manner that will have minimum impact on the resources.

To develop an interpretive program and facilities that will help the visitor understand this geological epoch in association with others (well represented in the National Park System) and the vast evolutionary changes, both biological and geomorphological, that have taken place in the earth's history.

11. Fossil Butte

An Act to establish the Fossil Butte National Monument in the State of Wyoming, and for other purposes. (86 Stat 1069)

Be it enacted by the Senate and the House of Representatives of the United States of America in Congress assembled, That, in order to preserve for the benefit and enjoyment of present and future generations outstanding paleontological sites and related geological phenomena, and to provide for the display and interpretation of scientific specimens, the Fossil Butte National Monument (hereinafter referred to as the "monument") is hereby established, to consist of lands, waters, and interest therein within the boundaries as generally depicted on the drawing entitled "A Proposed Fossil Butte National Monument, Wyoming." Numbered FBMN-7200, dated April 1963, revised July 1964, and totaling approximately eight thousand one hundred and eighty acres. The Secretary of the Interior (hereinafter referred to as the "Secretary") may revise the boundaries of the monument from time to time by publication of a notice to that effect in the Federal Register, except that at no time shall the boundaries encompass more than eight thousand two hundred acres.

Sec. 2. The Secretary shall administer the monument pursuant to the Act approved August 25, 1916 (39 Stat 535; 16 U.S.C. 1,2-4), as amended and supplemented.

Sec. 3. Within the boundaries of the monument the Secretary may acquire lands and interests in lands by donation, purchase, or exchange, except that lands or interest therein owned by the State of Wyoming or a political subdivision thereof may be acquired only by donation or exchange.

Sec. 4. (a) For a period of ten years, and for not more than ten years thereafter if extended by the Secretary, the continuation of existing uses of Federal lands and water within the monument for grazing and stock watering may be permitted if the Secretary finds that such uses will not conflict with public use, interpretation, or administration of the monument:

Provided, That the use of lands within the monument for stock driveways shall continue in perpetuity at such places where this use will not conflict with administration of the monument.

(b) Upon termination of the uses set forth in subsection (a) of this section, the Secretary of the Interior is authorized to provide for the disposition and use of water surplus to the needs of the monument, to a point or points outside the boundaries of the monument.

Sec. 5. There are hereby authorized to be appropriated \$378,000 for land acquisition and not to exceed \$4,469,000 (June 1971 prices) for development, plus or minus such amounts, if any, as may be justified by reason of ordinary fluctuations in construction costs as indicated by engineering cost indices applicable to the type of construction involved herein.

Approved October 23, 1972.

NATIONAL PARK SERVICE - DIVISION OF HISTORIC ARCHITECTURE
LIST OF CLASSIFIED STRUCTURES

1468	FOSSIL BUTTE NATIONAL MONUMENT								
10708	HS-02	Shelter & Quarries (Quarry Historic District)	D	May be removed	Undetermined	NR	Status		
	A-Frame Shelter								
	Stone	Other							
		Shelters and Quarries							
	Fee Simple			No MGMT Agreement					
	No Approved Treatment			Stabilization:	\$0	0/81			
				Treatment:	\$0	0/81			
				Level of Estimate:	C	Region			
	Current Use:	No Potential use		Stabilization:				NPS Responsibility	
				Routine Maintenance:				NPS Responsibility	
				Cyclic Maintenance:				NPS Responsibility	
				Ultimate Treatment:				NPS Responsibility	

APPENDIX B

